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Sakhalin -1: Safety Leadership

Joseph B. Silkowski, Daniel D. Duncan, and David C. Tyler, ExxonMobil Development Company, and Tatyana Salchenko, Consultant

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Abstract

Maintaining a safe work environment in a harsh, remote construction environment is a challenge. Success requires leadership, commitment, and a well-defined safety management system. This paper is a summary of Sakhalin-1 Project safety success achieved as an integral part of the project's business objectives. The results demonstrate broad safety ownership by project team members and contractors, the spread of a proactive and caring safety culture, and a favorable view of ExxonMobil as a business partner in Russia.

The paper also provides insight on some of the difficulties of working in sub-Arctic conditions with new contractors and a largely inexperienced and culturally-diverse workforce. Lessons learned and best practices are highlighted for potential use in future projects. Key points include the need for high level safety leadership and the visible involvement of senior project management. It shows the importance of clearly communicating your expectations and constantly promoting a culture in which business objectives never outweigh the need for safety.

Introduction

In late 1993, ExxonMobil affiliate Exxon Neftegas Limited (ENL), along with its Sakhalin-1 consortium partners SODECO, ONGC Videsh Limited, and Rosneft, signed a memorandum of understanding with the Russian Federation to begin technical and commercial discussions for development of three oil and gas fields off the eastern shore of Sakhalin Island.¹ Chayvo, located 5 to 15 kilometers offshore, was selected to be developed first, followed by the Odoptu and Arkutun-Dagi fields. Although the fields are in relatively shallow water, Sakhalin's Arctic winters threaten any offshore structures with thick sea ice and hurricane-force winds. The region is also prone to earthquakes.

Given the project's remote location and environmental challenges, ExxonMobil Development Company and operator ENL took an innovative approach for developing Sakhalin-1. First, a land-based drilling rig with extended reach capabilities was designed and constructed by Parker Drilling. In the summer of 2003, the 22-story "Yastreb" (Russian for "hawk") began drilling the projects' first extended reach well from shore into the western portion of the Chayvo field.

For its offshore drilling program, the project secured a mothballed concrete island drilling system that had formerly been used on Alaska's North Slope. The structure was towed to Khabarovsk Krai in Far East Russia, where it was made more resistant to ice and seismic events. From there it was towed to Korea, where a 12,000-metric-ton topsides facility was added. The new "Orlan" (Russian for "Sea Eagle") platform was then towed to the Chayvo field, where it began drilling in December of 2005.

To process oil and gas from Sakhalin-1, ENL hired Fluor Daniel to build an Onshore Processing Facility (OPF) near the shore-based well site. The contract, awarded in December of 2003, called for a series of 36 equipment modules to be built at the Hyundai Heavy Industries fabrication yards in Ulsan South Korea and shipped to Sakhalin Island for assembly. The modular approach allowed the OPF to go from design to load out in just 34 months, much less time than it would have taken to build the plant on site.

¹ Exxon Mobil Corporation has numerous affiliates, many with names that include ExxonMobil and Exxon. For convenience and simplicity in this presentation, those terms and terms like corporation, company, our, we and its are sometimes used as abbreviated references to specific affiliates or affiliate groups. Abbreviated references describing global or regional operational organizations and global or regional business lines are also sometimes used for convenience and simplicity.